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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,687	10/29/2003	Chih C. Tsien	1000-0014	5268

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The Law Offices of John C. Scott, LLC  
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Minneapolis, MN 55402

EXAMINER

ALAM, FAYYAZ

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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06/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/696,687	Applicant(s) TSIEN ET AL.	
	Examiner Fayyaz Alam	Art Unit 2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This action is in response to applicant's amendment/arguments filed on 2/14/2007. **This action is made FINAL.**

#### *Response to Arguments*

Applicant's arguments filed 2/14/2007 have been fully considered but they are not persuasive.

Applicant primarily argues claims 1, 9, and 17 on pages 6 - 7 that neither Wright nor Khullar disclose "calculating link margin...power level of a signal received by the wireless device..."

Examiner respectfully disagrees. Wright discloses an equation of calculating link margin using received  $E_b/N_0$  (read as power level of a signal received by the wireless device) and required  $E_b/N_0$  (read as receiver sensitivity indication).  $E_b/N_0$  is an indication of how strong a signal is because it is defined by energy per bit of the received signal divided by noise power. In addition, Khullar discloses measuring (read as calculating) link margin in **paragraph 0041** and therefore, there must be a device to make such a measurement, which would inherently run some sort of calculation to determine a measure of the link margin. Therefore, it would be obvious to one of ordinary skill in the art to such a combination in order to optimize transmission power and data rate.

Therefore, Examiner upholds his rejection of claims 1 - 24.

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In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1 - 3, 6, 9, and 14 - 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** in view of **Khullar (U.S. Application # 2002/0154611)**.

Consider **claims 1, 9, and 17**, Wright et al. disclose a method and thereby a system and a set of executable instructions stored in a storage medium comprising of calculating a link margin for a ground data link unit or GDL (read as wireless device and transceiver; col. 20, lines 1 - 3) by using received  $E_b/N_o$  (in dB) (read as power level of a signal received by the wireless device and transceiver) and required  $E_b/N_o$  (in dB) (read as receiver sensitivity) (see col. 20, lines 35 - 40).

Wright et al. fail to disclose adjusting transmit data rate of the wireless device based on said calculated link margin.

In the related field of endeavor, Khullar discloses selecting more robust transmission schemes (read as adjusting transmit data rate and transmit data rate determination unit; see table 1; [0041]) and measuring (read as calculating and link

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margin determination unit) the link margin until the present link margin, i.e., the received link margin of the received signal, has at least same link margin as the former transmit power level (read as adjusting transmit data rate based on link margin; see [0041]). In the interest of clarity, Khullar discloses in [0041], measuring a link margin of the presently received signal and comparing it to a former or predetermined link margin and then adjusting a transmission scheme or data rate until the two link margins are equal. Therefore, it is disclosed that the transmit data rate is adjusted or selected based on link margin.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to optimize transmission power and data rate.

Consider **claims 2 and 16** as applied to claim 1 and claim 14, Wright et al. disclose received  $E_b/N_o$  (in dB) (read as received power value since it is being calculated in an equation) (see col. 20, lines 35 - 40).

Wright et al. fail to disclose wireless device is a wireless client device for use in a wireless network.

In the related field of endeavor, Khullar discloses that the wireless device is a mobile station or MS (read as wireless client; see [0025]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to use link margin information in a wireless environment to control power.

Consider **claims 3, 14, and 18** as applied to claim 1 and claim 14, Wright et al. disclose calculating link margin and thereby a link margin determination unit by determining the difference between received  $E_b/N_o$  (in dB) and required  $E_b/N_o$  (in dB) (read as receiver sensitivity) (see col. 20, lines 35 - 40).

Consider **claims 6 and 15** as applied to claim 1 and claim 14, Wright et al. fail to disclose determining receiver sensitivity, before calculating link margin, based on a data rate of a received signal.

In the related field of endeavor, Khullar discloses a table of input signal sensitivities (read as receiver sensitivity) with corresponding transmission scheme (read as transmit data rate) where the transmission scheme selection is based upon the link margin present at the former increased power level (read as based on data rate of received signal) (see figure 3; [0038] and [0041]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to calculate the link margin before using the link margin information.

Consider **claim 12** as applied to claim 9, Wright et al fail to disclose a transmit power determination unit to adjust a transmit power level of the wireless device based on link margin.

In the related field of endeavor, Khullar discloses reducing transmit power level based upon the link margin and therefore a transmit power determination unit would inherently be implemented in order to carry out the method (see [0037 - 0040]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to reduce power consumption and perform power control.

**Claims 4, 10, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** as modified by **Khullar (U.S. Application # 2002/0154611)** as applied to claims above, and further in view of **Shvodian (U.S. Application # 2003/0003905)**.

Consider **claims 4, 10, and 19** as applied to claims 1, 9, and 17, Wright et al. as modified by Khullar fail to disclose selecting a transmit data rate by determining which of a plurality of ranges said link margin falls within.

In the related field of endeavor, Shvodian discloses data rate is adjusted according to the current link quality (read as link margin) and said data rate is the maximum or the optimum data rate for the current link quality (read as selecting a transmit data rate) (see abstract; [0061; 0063]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Shvodian in order to provide appropriate data rates for a given link margin to conserve power.

**Claims 5, 13, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** as modified by **Khullar (U.S. Application # 2002/0154611)** as applied to claims above, and further in view of **Walton et al. (U.S. Application # 2003/0013451)**.



Consider **claims 5, 13, and 20** as applied to claims 1, 12, and 17, Wright et al. as modified by Khullar fail to disclose entering a power reduction loop when said link margin exceeds a predetermined level.

In the related field of endeavor, Walton et al. discloses adjusting power level to a progressively reduced power based on the link margin (read as adjusting includes a power reduction loop when said link margin exceeds a predetermined level; see [0079 - 0081]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Walton et al. in order to provide suitable transmit power to conserve the overall power and combat interference.

Consider **claims 8 and 11** as applied to claim 1 and claim 10, Wright et al. as modified by Khullar fail to disclose selecting a maximum data rate and decreasing a transmit power level when said link margin exceeds a predetermined value.

In the related field of endeavor, Walton discloses increasing (read as adjusting and selecting) the data rate of the terminal to a level that satisfies the required level of performance (read as maximum data rate) and reducing the transmit power when a terminal has additional link margin over that required (read as link margin exceeds a predetermined value) (see [0170]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar

with the teachings of Walton in order to minimize power consumption and combat interference.

**Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** and **Khullar (U.S. Application # 2002/0154611)** as applied to claims above, and further in view of **Klein et al. (U.S. Application # 2003/0100328)**.

Consider **claim 7** as applied to claim 6, Wright et al. as modified by Khullar fail to disclose a received beacon signal.

In the related field of endeavor, Klein et al. disclose a receive beacon signal (see [0004]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Klein et al. in order to use existing method to perform transmit power control.

**Claims 21 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)** in view of **Khullar (U.S. Application # 2002/0154611)** and further in view of **Durham et al. (U.S. Application # 2005/0030244)**.

Consider **claim 21**, Wright et al. disclose a method and thereby a system and a set of executable instructions stored in a storage medium comprising of calculating a link margin for a ground data link unit or GDL (read as wireless device and transceiver; col. 20, lines 1 - 3) by using received  $E_b/N_o$  (in dB) (read as power level of a signal

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received by the wireless transceiver) and required  $E_b/N_0$  (in dB) (read as receiver sensitivity) (see col. 20, lines 35 - 40).

Wright et al. fail to disclose adjusting transmit power level for the wireless transceiver based on link margin.

In the related field of endeavor, Khullar discloses selecting more robust transmission schemes (read as adjusting transmit data rate and transmit data rate determination unit; see table 1; [0041]) and measuring (read as calculating and link margin determination unit) the link margin until the present link margin, i.e., the received link margin of the received signal, has at least same link margin as the former transmit power level (read as adjusting transmit data rate based on link margin; see [0041]). In the interest of clarity, Khullar discloses in [0041], measuring a link margin of the presently received signal and comparing it to a former or predetermined link margin and then adjusting a transmission scheme or data rate until the two link margins are equal. Therefore, it is disclosed that the transmit data rate is adjusted or selected based on link margin.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to optimize power and data rate.

However Wright et al. as modified by Khullar, fail to disclose at least one dipole antenna and a wireless transceiver coupled to at least one dipole antenna.

In the related field of endeavor, Durham et al. disclose an array of dipoles (read as at least one dipole in a diversity arrangement) connected to transceiver (read as wireless transceiver) (see [0015]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. and Khullar with the teachings of Durham et al. in order to provide a well known uniform radiation pattern in the azimuth plane and use antenna diversity for optimal connectivity.

**Claims 22 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wright et al. (U.S. Patent # 6,173,159)**, **Khullar (U.S. Application # 2002/0154611)**, and **Durham (U.S. Application # 20050030244)** as applied to claims above, and further in view of **Shvodian (U.S. Application # 2003/0003905)**.

Consider **claim 22** as applied to claim 21, Wright et al. as modified by Khullar and further modified by Durham et al., fail to disclose transmit data rate determination unit selects said transmit data rate by determining which of a plurality of link margin ranges said link margin falls within.

In the related field of endeavor, Shvodian discloses a transmit data rate determination unit (inherently) and that data rate is adjusted according to the current link quality (read as determining which of a plurality of link margin ranges said link margin falls within) and said data rate is the maximum or the optimum data rate for the current link quality (read as selecting a transmit data rate) (see abstract; [0061; 0063]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al., Khullar, and

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Durham with the teachings of Shvodian in order to provide appropriate data rates for a given link margin to conserve power and reduce interference.

Consider **claim 23** as applied to claim 21, Wright et al. fail to disclose a transmit power determination unit to adjust a transmit power level of the wireless device based on link margin.

In the related field of endeavor, Khullar discloses reducing transmit power level based upon the link margin and therefore a transmit power determination unit would inherently be implemented in order to carry out the method (see [0037 - 0040]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Wright et al. with the teachings of Khullar in order to reduce power consumption and perform power control.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Fayyaz Alam whose telephone number is (571) 270-1102. The Examiner can normally be reached on Monday-Friday from 9:30am to 7:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Fayyaz Alam*

May 1, 2007

EDAN ORGAD  
PRIMARY PATENT EXAMINER

*Edan Orgad* 5/10/07